

Small-Scale Harvesting for Woodland Owners

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Logging and selling timber can appear to be a complex and somewhat esoteric task for many small woodland owners. Most owners are well-versed in tree planting, vegetation control, and stand management, but planning a timber harvest and selling the logs is a process that occurs infrequently and uses terminology some owners find confusing. Terms like feller, buncher, Scribner, merch, cull, and long-butting are not often used in everyday conversation.

Logging and selling timber in small volumes on small acreages comes with its own unique challenges and opportunities. Equipment, harvest unit layout, and merchandising are aspects of small harvest operations that can be especially difficult to manage. Although small-scale harvests can be economically driven like most larger harvesting operations, just as often, the primary objective might be something such as creating a park, improving wildlife habitat, conducting an early thinning, removing dead or defective trees, clearing a building site, or eliminating hazard trees. With objectives other than timber output, many owners consider an operation successful if they merely break even and avoid any out-of-pocket expenses.

This publication discusses the unique aspects of small-scale harvesting and offers some information to help you through the process.

Background

Timber from private woodlands in Oregon comprises a small percentage of the state's annual timber harvest. Over the past decade, it has accounted for less than 10 percent of the timber volumes required to operate log-procuring facilities around the state. Timber volumes per owner are quite small, considering the thousands of woodland owners in Oregon and the many hundreds of them who annually conduct a logging operation. An average industrial harvest yields several hundred thousand board feet



In small-scale harvesting, contractors often subcontract self-loading log trucks because the small volumes don't justify moving a loader onto the site.

(MBF) of timber. In contrast, most small woodland owner operations amount to no more than 100 MBF, and many harvests are less than 20 MBF. Regardless of how they are conducted, there is a strong possibility these operations will be revenue neutral at best, or result in out-of-pocket expenses to the landowner.

There are some important differences to consider when logging and selling timber from small woodlands as compared to industrial forests. The primary objective of industrial foresters is intensive timber management. Although small woodland owners also view timber as a valuable aspect of ownership, equally important are things such as recreation, fish and wildlife habitat, or vegetation diversity. Due to

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Logging contractors can perform a number of activities to help woodland owners achieve their goals and objectives for their property. This picture shows a contractor assisting in the creation of a pond habitat.

this difference in objectives, industrial forests tend to be more homogenous in size and structure, while stands on small woodland properties typically contain a greater mixture of trees in terms of species, age, and wood quality.

Today, individual mills accept fewer tree species and have restrictions on acceptable log lengths and diameters. Consequently, woodland owners with small, individual harvests containing multiple species and varying log quality or characteristics may find it very difficult to maximize revenue. Those with exceedingly small log volumes (less than a truckload) will not be able to capitalize on either species or range of acceptable log dimensions or both.

For a logging contractor, stand diversity can make equipment selection less efficient. There is not a one-size-fits-all piece of logging equipment; each machine operates best within a certain range of timber or log sizes. However, when timber size exceeds those ranges, the contractor cannot maximize production, and the result for the woodland owner is more out-of-pocket expense to complete the job. Logging contractors desire large volumes and uniform tree characteristics because those correlate to lower fixed costs per job (the time and money required to move equipment to the job site) and less time looking for the next one.

The unique aspects of small woodland ownership, along with some general requirements for any timber harvest, should be considered in order to generate the greatest amount of revenue (irrespective



Contractors may use small-scale machines especially designed for logging. Woodland owners, however, do not usually own this type of equipment because it is costly, requires maintenance, and would not be used very often.

of profitability) and minimize any site impacts from the operation. Although it is not always possible to resolve every challenge that timber harvests on small woodlands present, many steps can be taken to improve the process overall. *Selling Logs and Timber* (EC 1587) is a good starting point to familiarize yourself with the logistics of a timber sale, regardless of harvest size or owner objectives.

Factors to Consider in a Timber Harvest

First, we should ask ourselves, why a timber harvest? Objectives such as timber stand improvement, wildlife habitat enhancement, and clearing an area for a building project are all reasons for tree removal and, depending on your other motives, could be credible reasons for logging. But, the general concern when harvesting timber is not to lose money. In some scenarios, you will not generate a profit cutting down your trees. Though the objectives may be less about profit and more about minimizing impacts on the landscape, no one wants to lose money in the harvesting process. So, as much as possible, consider the harvest in terms of maximizing revenue and minimizing operating costs.

The largest factors in determining the cost of a logging contractor's services include tree size and harvest volume. For example, to become revenue neutral requires about 30 trees that are 1 foot in diameter to make a truckload of logs (usually 2,000 to 3,000 board feet or 2 to 3 MBF). At best, you might make \$300 or \$400 on an entire truckload, but it is entirely possible the logger could take it all or

even require more than the total value of the trees. It is important to remember that, in these smaller operations, better options may exist than selling to a local mill—the same volume of trees being considered for harvest would have a firewood value of over \$1,000.



Trees that are too small or defective are still viable as firewood, whether for sale or for personal use.

Another consideration is thinning. For small-diameter trees, a “light” thinning constitutes removing approximately one truckload of trees (2 to 3 MBF) per acre. A logging contractor will usually require at least $\frac{2}{3}$ of the value of the wood and quite possibly the full value of it, making it a marginal investment in the short term. Thinning a few really large trees (over 3 feet in diameter) is another option, but also has its drawbacks. Typically, they are residual trees from a previous harvest or trees located adjacent to buildings or bordering a roadway or pastureland. Those remaining from a prior harvest are likely low-quality, low-value trees or difficult to remove. In addition, trees growing in open spaces usually have poor form with large, numerous limbs, making them also low quality and low value.

Often overlooked is the question of access to the trees. Over the past few years, trucking costs have constituted an increasingly large portion of the total expense for a timber harvest. Two contributing factors are the degree of difficulty in accessing the timber on the property—taking into account narrow, steep, or substandard roads—and the distance to the mill. Choosing a mill involves evaluating the dollars-per-MBF values from each mill and the associated cost of getting the logs from the landing to

the respective mill(s). Usually, the most economical choice will be the mill closest to your property.

Planning the Operation

It is also important to consider what preparation you will need prior to the timber sale. These on-the-ground preparations consist of factors such as access roads, location(s) of landing sites, and the area to be harvested, including selection of trees to remain or to be harvested.

Access roads are often taken for granted by owners who access their property with a conventional vehicle. Accommodating heavy equipment, however, requires a much better road than one used by your family car or pickup. These requirements include a greater turning radius on curved roads, a wider running surface, and, for wet-weather operations, far more rock. It cannot be emphasized enough: the impacts of an 80,000 pound logging truck are far greater than those of a 5,000 pound pickup truck. *Managing Woodland Roads: A Field Guide* (PNW 641) is an excellent source of information about the design, maintenance, and repair of woodland roads.



Clearance requirements for personal vehicles are much different than those for logging trucks and logging equipment, especially in terms of turning radius and steepness.

In large-volume logging operations, bigger landing sites (places where logs are processed and stored for hauling to the mill) are critical because of the space required to accommodate larger log decks and the variety of equipment that occupies a landing site, including yarders, shovels (log loaders), multiple processing systems, bulldozers, skidders, and log trucks in different combinations. Most small-volume operations involve only ground-based systems. A typical small-volume operation requires enough space to deck one or two loads of logs, the yarding system (normally a skidder and/or a bulldozer), and a self-loading log truck. Smaller landing sites are easier to locate and construct than larger ones simply because they require less space to process the timber.



Decking logs near a road is common practice in logging operations. Special care needs to be taken to ensure the site is returned to its natural state after ending operations.

A critical aspect in locating these smaller landings is average yarding distance (AYD). This is the distance a piece of machinery must transport (skid) logs to the landing site. When employing ground-based systems, flat (less than 30% slope) or favorable (downhill) grades and short yarding distances are critical for production. If a logging contractor determines their equipment will be skidding logs long distances or on adverse (uphill) grades or both, the job will be bid accordingly. Seeking input from potential contractors on road and landing locations beforehand can save valuable time in terms of the operation, which correlates to more money in your pocket. A cursory view of the planned site by the contractor or a professional forester will likely reveal

more pertinent information than any amount of planning by an inexperienced landowner.

A well-designed road system and landing location can greatly enhance the logistics of the operation, reducing costs and increasing revenue to the owner, but that is only half of the equation. You have addressed how to get the wood, but what type of wood is it? Timber species and quality are often determined by location in the forest. A southern aspect with shallow, rocky soil often reveals different species (ponderosa pine, incense cedar, and oak or madrone) than a northern exposure with deeper, better soil (Douglas-fir, white or grand fir, western redcedar, bigleaf maple, and red alder). You can make a profit logging two or three truckloads of logs of similar species and quality, but an equal volume consisting partly of fir, pine, incense cedar, and oak is unlikely to result in any discretionary funds after paying the logger.

Potential Pitfalls

Designated Harvest Areas

Woodland owners are known for a desire to show others their property and discuss various future management plans. When discussing a potential timber harvest with a logging contractor, you may find yourself digressing into plans for more than was initially intended—a big tree here, a dead tree there, a small area that was previously missed, a skid road to collect some blowdown hardwoods for firewood—and suddenly the proposed operation becomes unmanageable. Instead, designate an area that will be feasible for the contractor in terms of access, landing(s), and yarding distance and leave the rest for another day.

In the long term, you will see greater progress in the management of your property if you pick a designated site, complete your management objectives, then move on to another area. It can be tempting to complete just the easier tasks and move on, leaving more difficult tasks undone. When re-entering the area, you might continue avoiding difficulty by working on the next easiest task. Eventually, what is left can seem so troublesome that you might feel like giving up and not completing the job. It is better to tackle both the easy and the difficult tasks to ensure everything gets done.

Tree Ownership

Successful maintenance or repair of existing roads, location of landing sites, and design of harvest area(s) means you are on your way to selecting a contractor and beginning the operation. But are you sure the trees are really yours? Say, for example, your woodland borders an adjacent landowner's clearcut on one side and a neighbor's fence on the other. The only legally acceptable property line that will hold up in court is one established by a licensed surveyor, not a forestry consultant, industrial forester, or the logger as determined by a road, fence, or building. Many of the property lines of today's woodland properties were established by the Donational Land Claims (DLC) Act of 1850. When roads and fences were put in, they were sometimes placed in areas of easiest access and not congruent to the DLC lines. In short, do not trust old harvest boundaries, fences, roads, or anyone other than a licensed surveyor to establish your legal property lines.

There are financial consequences to removing timber that is not legally yours. If you harvest trees, and it can be legally proven that ownership resides with another landowner, you may be fined double the fair market value of the trees. If you knowingly remove trees that are not yours, fines are triple for such an offense. So again, the importance of determining legal ownership cannot be overemphasized.

Written Management Plans

OSU Extension Forestry strongly recommends that you develop a written management plan for many reasons, including estate planning, tax liabilities from a timber harvest, inventory, stand management, and listing goals and objectives of woodland ownership. Soil and topography maps, along with stand inventory information, can be very helpful for designing an efficient timber harvest. The majority of small woodland owners does not have a written management plan, which can be a problem when dealing with timber harvests and selling logs.

To complete a purchase order for your logs, log buyers will request proof of a written management plan or the name of a certified logger who will be performing the harvesting. If woodland owners are doing their own logging, then the only way for them to sell their logs is to have a written plan. There are very few exceptions to the requirement, so it is

imperative that a written plan is available or a certified logger is doing the job. All log buyers will also request the notification number you obtain when you complete your Notification of Operations with the Oregon Department of Forestry (ODF). The number acts as a tracking device for the ODF in compliance with the Oregon Forest Practices Act and the Oregon Department of Revenue for possible tax liabilities, and it is a requirement in order to sell your logs—no exceptions.

Selecting a Log Buyer

It is time to select a buyer and, if applicable, a logger to perform the work. Which do you do first? We advise first contacting prospective log buyers, for two reasons:

1. Log buyers know the value of your trees in relation to the requirements of their mill. The buyer will identify trees of poor form or undesirable species. Depending on that assessment, you may want to re-evaluate the operation. If, however, the planned harvest is to be completed regardless of timber value, you can seek other ways to dispose of the trees such as portable mills, firewood, wildlife habitat enhancement, or biomass.
2. Log buyers can help you select a contractor. The vast majority of woodland owners has little or no experience in logging or marketing, so they may have difficulty locating appropriate contractors on their own. Log buyers are fully informed of the contractors in their respective areas and can recommend a good choice. Buyers will only suggest contractors with whom they want to do business because the logs processed by those very contractors will be used in their mills. Log buyers' reputations are as much at stake giving you a recommendation (and any other information) as they are when making an offer to purchase the logs.

The Value of Your Trees

Whether or not you seek assistance from a log buyer, having a basic understanding of how log value is determined can give you a level of comfort with the process of merchandizing. While the exact details of determining timber volumes and values are beyond the scope of this publication,

anyone interested in more information on tree measurements should consult *Measuring Your Trees* (EM 9058). In addition, the *Measuring Your Trees Workbook* (EM 9059) is an Excel spreadsheet that includes a printable final report as a companion to EM 9058.

Measuring your trees to estimate volume (which largely determines value) *might* skew your original plans. Money may not have been part of the initial plan, but it has a way of altering it. Let the objectives of the harvest area determine which trees will remain and which will be harvested, not the value of the trees. This is especially important when the logging contractor enters the picture. Loggers are in business to make money. When surveying the area, they may suggest removal of larger or more valuable trees to offset your costs (and thereby increase their profit), stating that other, less-valuable trees may still enable you to achieve your objectives. While loggers occasionally present viable alternatives to your plans, keep in mind they have a vested interest in the outcome. Base your decision on the trees. After all, once a tree has been removed, it will be a long time before there is another of equal proportion.

Owners lacking experience in harvesting operations may be unsure about the desirability and value of their trees. Contact OSU Extension Forestry to obtain a *Log Buyers Directory* and educate yourself regarding species and log dimensions. Once you have determined whether the trees are the right size and species for a mill, consider the quality. It is beyond the scope of this publication to discuss the intricacies of log grading and scaling, but a few basic questions most landowners have related to log quality or desirability are addressed below.

Rot in one end and showing no discoloration in the other is acceptable. Rot of any kind, when located in both ends of a log, likely means that log is a “cull.” A cull designation relegates the log to biomass, firewood, a chipping facility, or downed, woody debris to be left in the forest. Cull logs at the mill will have zero value or, at best, a very small percentage of the value of a “merch” (merchantable) log.

Also, logs do not have to be perfectly straight. Regardless of the log length, a good rule of thumb is that if half the length of the log is straight, it will likely make a merchantable sawlog. Sweep (imagine the log is pliable and you bend it from both ends) is

a common defect in logs. Even though no part of a log with sweep is straight, the curvature is gradual and uniform enough that lumber can be processed from it and is thus acceptable to the mill.

Finally, regardless of tree species, a merchantable log requires a diameter of at least 5 inches at the small end of the log. If the diameter is less than 5 inches, the log will be considered “non-merch” or a cull. The minimum diameter requirement is especially important to remember with stands of young red alder and heavily stocked lodgepole pine, where trees typically have good form but small diameters, and also when thinning young timber of any species.

Often, owners have questions about dead or dying trees. All purchase orders from log buyers request “fresh cut, green logs.” The degree to which this statement is enforced depends on species and quality. For example, fallen or dead, debarked western redcedar logs, even with portions of the sapwood rotted away (often called buckskins) are highly desirable to mills that process cedar, yet virtually any mill will refuse a small-diameter Douglas-fir log whose bark has fallen off and which exhibits sapwood decay. Any hardwood that is dead and dried-out is



A harvesting operation may contain some logs that, because of their species or size, are not acceptable to local mills. This scenario presents a good opportunity to use a portable sawmill.

undesirable. The same thing applies to pine species. A general rule for conifer species, excluding red-cedar, is that any log showing signs of insect attack with bark that is dry and beginning to slip from the log is highly questionable in terms of marketability.

Selecting a Contractor

There are other avenues besides recommendations from log buyers when searching for a logger. Obviously, if you employed a particular contractor in the past and were satisfied with the results, that person likely will be a good choice the next time. Similarly, neighbors are good sources—if they are satisfied with a logger they hired, you will probably be satisfied with that logger's work, too. Loggers are often hired by owners who observe their work on an adjacent property. If you are impressed by the work, stop and begin a conversation regarding possible future employment. Be sure to request the names of small woodland owners who have previously employed their services. Also, many ODF offices keep a list of contractors and are familiar with the reputations of those on the list, and the Associated Oregon Loggers (AOL) website contains a statewide listing of certified loggers. There are other sources, but the basic principle is that you should consult with individuals or organizations that make timber harvesting their business because they will be the best informed with the most recent information.

You find a good logger, but do they have the appropriate equipment for the job? Technological



The most important element in any operation on your woodlands is an open line of communication with the contractor, before, during, and after completion of the project.

advances in logging equipment and operating on narrower profit margins have led to contractors becoming more creative in how they conduct their operations. For example, shovel logging has increased substantially the past several years, largely because, under proper working conditions, a shovel can move more wood than other ground-based equipment or yarders. Also, mechanized systems, including feller-bunchers, stroke delimiters and forwarders, are used in situations where traditional ground-based systems (dozers and rubber-tired skidders) were once the system of choice. However, an effort to control costs has resulted in these more efficient systems being pushed beyond their original intent, making safety an increasing concern.



Many small-scale operations use machinery not typically associated with logging activities. Farm tractors, for example, can be equipped with various accessories employed in logging. In this photo, a Farmi winch is being used to skid logs.

Costs and Payment

What are the possible consequences of these new systems, increased competitiveness, and narrower margins? When the job involves small volumes, there is a strong incentive for the contractor to complete it as soon as possible, in hopes of moving on to a larger and more profitable operation. Even if your job represents substantial profits to the contractor, because of the small volumes, those profits will diminish from the downtime and money required to set up for the next operation.

In terms of equipment selection, you need to communicate with the contractor about which equipment will be used and its possible effects on the residual timber stand and on the future

growth potential of any reforestation efforts. *Timber Harvesting Options for Woodland Owners* (EC 1582) can help you determine what types of systems are best suited for your operation. An important point to remember is that all timber stands are unique, and while a publication may recommend a particular method of logging, another method may be just as effective and more profitable to both parties. Be open to any ideas the potential contractor may have, but do not compromise your individual goals or harvest objectives.

All loggers want to make money, and all landowners desire a profitable operation in addition to minimal impacts on their roads, soils, and residual trees. Equipment selection and the terms of a written and signed contract make these sometimes-conflicting objectives more obtainable for both parties. When developing your contract, be sure the effects of the logging operations enable you to retain those objectives. *Contracts for Woodland Owners* (EC 1192) contains some standardized wording for logging contracts that you can use as a foundation for a legally sound document. Individual objectives can be included to customize the contract into an agreement that satisfies both you and the contractor.



All written contracts should contain a clause about suspension of operations, especially related to extreme weather (which can lead to muddy roads like this one) and residual stand damage.

A fundamental feature of any contract is method of payment. In logging contracts, payment is most often based on either dollars per unit or a percentage of the value of the wood. Historically, loggers have worked on a percentage basis, and 50 percent of the value of the wood was standard operating procedure. Today, competition, changing demographics of woodland ownership, equipment options, and mill requirements have made bidding slightly more

complex, but the percentage method remains popular among contractors.

However, consider dollars per unit. A dollars-per-unit basis removes the market from the payment structure. For example, Douglas-fir log values were \$800/MBF in January 2015 and \$600/MBF in June of the same year. All things remaining the same, if you negotiated a 50 percent payment structure, why pay a logger \$400/MBF in January versus \$300/MBF in June for the same job? As the owner, you are taking on the risk of a seldom-performed operation, and if you have been fortunate enough to hit a strong market, you should enjoy the benefits. Market strength or weakness should not be a factor in how much money you give the logger.

Peripheral Elements in an Operation

Working Around Man-made Structures

Oftentimes, there are unique, peripheral elements that can affect small operations. The logistics of working around power lines, buildings, roads, fences, and adjacent properties make an operation more difficult and time consuming. The margin of error in felling and yarding is greatly decreased, possibly requiring winching, timber jacks, and tree pulling. These tasks take more time for the contractor, meaning greater cost to you, the landowner.

Additional language should be included in the contract, protecting you, the contractor, and your neighbors. First and foremost is insurance: check for a current policy containing both property damage and liability coverage. A contract outlines how the job is to be conducted to achieve the desired outcomes, but keep in mind that the more restrictive the contract, the more it will cost you. Protect yourself, but do not overburden the contractor with superfluous requirements such as starting times and allowable working days.

While stressing the importance of having a written management plan prior to operations and a written contract during the work, there are also some non-legal issues small woodland owners should consider before conducting any activities.

Working Around Neighbors

Smaller acreages correlate to having more neighbors. Studies also show that small-acreage owners have a greater variety of management objectives and

reasons for ownership. Historically, people owned woodland property for financial reasons, while today many non-timber issues are reasons for ownership. Your neighbors may also have differing opinions about you removing trees and disrupting their peace and quiet. Most small operations are conducted during the dry months, so dust is an issue. Traffic is another one. Typically, loggers begin work at dawn or earlier. All of these factors will disrupt the daily routines of your neighbors.

Be proactive and inform neighbors of your plans; address any potential concerns and seek their input. Oftentimes, the mere fact you have been considerate and extended a line of communication is sufficient to have an orderly and peaceful operation.

Cooperation with Other Owners

After talking with you and witnessing a successful operation on your property, your neighbors may feel inspired to do something on their own land. If so, it is possible that the activities of you and your neighbors may inspire other woodland owners in the area to conduct similar operations on their respective properties. Collectively combining your efforts or resources to achieve economic influence would create a co-op, a concept that has been around for many years but has been largely unsuccessful.

There are two issues that affect woodland owners and which co-ops attempt to solve.

The first issue is that, because of the small volume of the job, a logging contractor may select a harvesting system based on the cost of moving it to the site rather than its efficiency. For example, in a thinning operation, the contractor might choose a slower system, such as a small dozer or skidder, because it costs less than a more efficient, mechanized system.

If several adjacent owners combine their operations, hiring a mechanized system could possibly be less expensive than if undertaken by an individual owner. However, the contractor still has to move the equipment to each property, and although the distances are shorter, there will be setup costs each time. Also, many small woodland owners overlook the fact that it takes a wider road for these mechanized systems to access a harvesting area. Such systems did not exist when the current roads were constructed, and, in some cases, extensive upgrades will be required to accommodate them.

The second issue involves log volumes. A small operation may be three, four, five or even 10 truckloads of logs. It literally takes longer for the buyer to travel to the site and write up a purchase order than it does for the mill to process the logs, making these small operations somewhat unattractive to a buyer. Combining the harvests of a dozen or so owners may result in timber volumes of a few hundred thousand board feet and, consequently, a greater incentive to visit the site and purchase the logs. However, the likelihood of a higher price per MBF is extremely small. Timing such operations can also be problematic, with multiple owners needing to get organized and decide on an individual contractor to harvest a given area within a specific timeframe.

With purchase orders, a log buyer can proceed one of two ways, each of which has its drawbacks. One possibility is to offer a single order to an agent acting as the representative of the group. Keep in mind that, though each owner's timber stand is unique, an offer given for a combined group of logs will more closely reflect the value of the lower-quality material than the opposite. It is unlikely that the owner with better-quality logs will be inclined to "subsidize" the lower-value logs of other landowners.

Alternately, the log buyer can offer individual purchase orders to each owner. When a single operator is performing the harvests, though, the combined jobs may last over 30 days (the length of a standard purchase order). Trends reveal that prices decline during the late spring and summer months (when most of these operations will occur), so the last woodland owner to have his or her timber harvested will likely receive a lower price per MBF than the owner of the previous job.

In consideration of the preceding information, you can understand why the concept of combining harvests, for the most part, has not been successful to date.

Foreign Material

Many small operations conducted around man-made structures come with concerns about foreign material. Trees growing in proximity to buildings may contain spikes, nails, and fencing remnants or transformers from abandoned power lines. Log buyers are always wary of purchasing logs from areas near any sort of structures or development.

Oftentimes, foreign objects have been imbedded several years previous and, with the growth of the tree, can be extremely difficult to detect. A transformer or spike can ruin a bandsaw used in the mill, and the cost to the company to replace the part or repair the damage will be much more than the profits from processing the logs. If that happens, the buyer will immediately suspend the delivery of any remaining logs coming from the site.

Timing and Log Values

When selling logs, timing is almost as important as quality. The vast majority of logs in small-scale sales are harvested during the dry season, for two reasons. First, woodland owners, like anyone else, prefer to work during warm, dry periods instead of cold and wet. Second, few have durable, rock-surface roads and cannot access their timber during the wet months when annual prices are higher.

So why not invest in rocked roads to take advantage of those increased annual log values? Research shows that the increase in log values over the past 20 years would require timber inventories beyond those of most small woodland owners. For example, to economically justify the investment of rocking a half-mile of road to access a timber stand would require a harvest of several hundred thousand board feet. Obviously, that isn't a fixed number—depending on annual log values and the design and length of the road, it could require a smaller volume—but even the best-case scenario requires more timber than is available to most owners. The result is a lot of summertime logging at reduced log values, but what about reduced costs?

Availability of Contractors

The increased activity during the limited operating season means loggers and log trucks sometimes run in short supply. In most instances, you will be hard-pressed to find a satisfactory contractor if you have not done any pre-harvest planning. As in any occupation, the good operators are nearly always busy and are booked well in advance. Don't assume that a spur-of-the-moment idea can happen immediately. Start the process early and take time to write a good plan. The further ahead you plan and the more clearly you articulate your goals, the better positioned you will be to hire a high-quality contractor.

When selecting a contractor at the spur-of-the-moment for a small-scale job, it is likely that the bids will vary widely. Normally busy contractors who are between jobs and find a short period of availability may give a high bid because they know they will soon be working again and might not be particularly interested in a job that lasts only a few days. At the other end of the spectrum, contractors needing work may approach the situation one of two ways. First, because they want the job, they may submit a competitively low bid. Second, they may want the job, but because work has been scarce, they submit a high bid in hopes of making up for lack of business.

So, as in any operation, plan ahead! The best time to seek and select a satisfactory contractor is during the wet season prior to the event.

Increasing the Operation's Revenue

The basis of payment for nearly all of the logs in Oregon and the Pacific Northwest is the Scribner Log Rule. The system is over 150 years old and contains idiosyncrasies that can confuse even experienced individuals. When the logger fells a tree and cuts it up into log segments, acceptable log diameters and lengths are determined by the requirements of the purchase order. Each purchase order from each log buyer will stipulate somewhat different dimensions. The trick is to determine which purchase order best fits the characteristics of your timber stand.

Keep in mind that you should be concerned about the *value* of an individual log segment, not its *volume*. Two things you *cannot* control about your timber harvest are the characteristics of the trees being harvested and the structure of the purchase orders. Two things you *can* control are the logs produced from your trees and the type of purchase order you select. There are literally hundreds of possible log combinations in each tree, and deciding which combination is best can bewilder even the experts. *Producing and Selling Logs for Maximum Revenue* (EM 9047) can help you develop a systematic approach to converting your trees to logs. The publication discusses the various ways to maintain the value of your trees as they are harvested by the logger and improve the value of the logs with well-designed bucking patterns.

A step further in your research will bring you to *The Scribner Volume and Value Tables* (EM 9090). If you are confused by the merchandising process and how logs are purchased by the mills and measured by the scalers, do not feel alone. You may not become well versed in log merchandising, but with EM 9090, you have a tool very few contractors employ. Entering the specifications of different purchase orders and their corresponding price structures gives you a spreadsheet of the values of each log length and diameter acceptable from an individual purchase order. The Scribner Volume Table (the basis of all log volumes) is replaced by a Scribner *value* table. Using this spreadsheet can put you ahead of even the best of loggers and merchandisers.

Summary

Market timing, contractor selection, timber types, purchase order structure, and your individual objectives all play a part in the possibility of a return on

your investment, the achievement of your goals, and a successful outcome to your operation. Harvesting small volumes on small acreages has many unique aspects and challenges. If you invest the time and energy, you can feel more comfortable in the planning and process of logging and selling your timber while also achieving your individual goals and objectives.

Q & A

In 2015, members of the Oregon Small Woodland Association were asked to identify which aspects of a harvesting operation needed clarification or additional information so they could better understand and manage their projects. Answers were too numerous to list verbatim in this publication, but there were several recurring themes from the respondents. Below is a list of the 20 most commonly asked questions regarding planning, implementing, and monitoring a harvest operation.

20 Things You Should Know Before Conducting a Timber Harvest

1. Who pays for setup (moving in the equipment required to do the job)?

All logging contractors have fixed and variable costs. One major fixed cost is the price of moving equipment to your property to begin a job. The cost will be the same whether logging 1 truckload of logs or 100. That is one of the primary reasons why contractors charge relatively large percentages or price per MBF to perform small jobs. Who pays? You pay.



Photo: Lynn Ketchum, © Oregon State University

2. Does the price quote include hauling costs and how are they determined?

When a logging contractor submits a bid for a job, be sure hauling costs are included in their offer. You do not necessarily need a line item cost for cutting, skidding, and hauling (the three primary costs in a logging operation), just be sure you inquire whether the offer includes trucking. Trucking costs are usually determined by the load, by the hour, or in price per MBF or per ton. The by-the-load method is the most popular for small operations. All of this information should be included in a written contract prior to conducting any operations.

3. What method of logging and equipment will be used?

Matching equipment to a specific site is extremely important for the contractor and the woodland owner. The contractor needs to use the most efficient system to increase production and reduce operating costs, and the woodland owner desires a system that minimizes residual damage to the property. In many aspects, it is not the type of equipment, but rather the equipment operator that determines the amount of residual stand damage.

4. Does the logger have proof of insurance?

Any operation on your property should come with a written contract. One of the prerequisites of any written contract is proof of insurance, including liability and property damage. Be sure to look at the actual policy and check for beginning and ending dates of coverage. Also, consider adding your name to the contractor's policy as an "additional named insured," meaning you are covered under the logger's policy for the time they remain on your property.

5. Who markets the wood?

Many owners assume the logger is the best individual to sell their logs because they are in the logging business. Loggers are in the business of harvesting timber (a measure of activity), not necessarily selling the logs (a measure of market strength). Although they might select the proper mill, you should consult with individuals who buy and sell logs for a living (log buyers and consultants).

6. Does the logging rate include slash piling?

Slash disposal is one of the most-often overlooked elements in a logging contract. Some owners assume slash disposal is a prerequisite for the completion of any operation. Not true. How logging slash is managed—including the type of machinery (dozer, excavator, manual) and method of disposal (windrows, piles, on the landings), or if it isn't managed at all—should be part of any written contract.

Burning the slash is a separate issue. By the time burning is possible, the logger is off to other jobs, so the contract should specify not only who piles the slash, but the agent responsible for burning the material when burning season opens.

7. Does the logging cost include road improvements or construction and repairs after the operation?

The logger may recommend improvements to a woodland road to accommodate big, heavy logging trucks along with measures required to restore the road to "equal or better condition prior to operations" before leaving the site. Those costs can be included in the bid or as a separate line item, both to be paid by you. The best way to establish measurable parameters is to take pictures of the road prior to beginning operations and after completion of the job.

8. Do I mark the trees, or will the logger do it?

In a thinning or partial cut, tree marking is imperative. If you are unfamiliar with tree selection in terms of spacing and health, the logger can be of assistance, but remember their vested interest is to harvest trees, not save them. Consider asking a knowledgeable neighbor or a professional forester to assist you. Mark trees (by paint or flagging, preferably paint) to be harvested at breast height and ground level (below stump height to be identified after cutting) ensuring removal of only marked trees.

9. How do I track loads sent to the mill?

Although timber theft is a somewhat overrated concern, there is an easy procedure that can ensure credit for your trees and give you peace of mind. Have someone (other than the logger and trucker) on or near the site to identify any trucks leaving the property. Each load of logs should come with a trip ticket noting the time and number of logs on the truck. When you are paid by the mill, you will receive a list of the number of loads and the time and day they were delivered, making it easy to cross-check with the original trip tickets.

10. Do loggers subcontract any of the work?

Subcontracting is a common practice in a logging operation, especially for the cutting and hauling

components of the job. Be sure the written contract with the primary contractor has a clause stating that any subcontractors who are employed must also comply with all of the stipulations of the original contract. If hauling is subcontracted, be sure a price has been negotiated and recorded in the contract prior to any hauling.

11. Is the logger certified?

In order to sell logs in Oregon, you are required to have a written management plan or have your logging done by a certified logger. Considering that many woodland owners do not have a written plan, their logger must be certified. The choice is yours, but remember that having at least one of these two things is a prerequisite to selling any logs.

12. Should I ask the logger for references from recent jobs completed for small woodland owners?

There are a number of ways to find and retain an acceptable logging contractor. Once you have identified one, ask for documentation of their work history to see if they have successfully completed operations similar to the one you are planning. If the contractor has no documentation of prior work experience with small woodland owners or refuses to provide it, you should be very wary about retaining them.

13. If a job extends into late fall, how do I determine when it is too wet to work?

Most operations by woodland owners take place during the summer months when weather is good. In the fall, bad weather can impact haul roads and create residual stand damage (erosion, rutting, and possible stream sedimentation) on and around the logging site, and the contractor may have to suspend operations. There are no set guidelines for when an operation should be suspended, but you should include some parameters in the contract regarding the suspension of activities on your property.

14. Who does all the paperwork, including the Notification of Operations, purchase orders, and logging contracts?

A Notification of Operations can be completed by you or the logging contractor. This is the document you file with the state in order to conduct most activities on your property. To sell your logs, you must have the notification number that comes with the permit! There are no exceptions. If you own the logs, you need to sign the purchase order, not the logging contractor. If the contractor has purchased the logs from you, then the contractor owns the logs and signs the purchase order. The logging contract requires signatures from both you and the logger and can originate from either party.

15. Who is responsible for reforestation?

Typically, reforestation is done by the landowner. Occasionally, logging contractors will perform this activity, but in nearly all cases will subcontract the actual tree planting. Regardless of who performs the activity, the Oregon Department of Forestry (ODF) will hold the landowner responsible for any replanting violations, which is the primary reason most landowners assume responsibility for planning and carrying out reforestation projects.

16. How do I prevent a logger from taking more trees than was agreed upon previously?

In a thinning or partial cut, trees designated for removal should be marked. In a clear cut, the boundaries of the harvest area should be indicated with paint or flagging. Sometimes, owners begin a logging operation and, in the process, realize they made a mistake and want to suspend operations. There is no easy way out of this quandary. It most likely could have been avoided by having a written management plan, which requires owners to think through various goals and objectives and the ramifications or impacts of those plans on their property.

17. On the Notification of Operations, is the landowner the owner of the timber and therefore responsible for paying the harvest and severance taxes?

The Notification of Operations requests information on the owner, operator, and timber owner. Usually, the owner and timber owner are the same party. If the owner sells the trees to the operator (the logger) prior to harvesting, then the operator becomes the timber owner and is responsible for the taxes. The easiest way to determine who owns the timber is by whose name is on the check when it arrives from the mill. If you get the money, you pay the taxes.

18. Do loggers receive the same rate for removing pulp logs or non-merch trees as they would for merchantable trees?

Oftentimes, a contractor will make a separate bid for non-merch material because it is of such low value. However, if a different split is not specified in the contract, the logger receives the same rate for both types of trees. If a different rate is negotiated, it needs to be included in the contract. For example, the contractor might be paid 40 percent of the value of the merchantable material and 80 percent of the value of the non-merch (cull or chip) logs. Since non-merch trees take just as much work to remove as merchantable trees, but are much less valuable, the higher percentage ensures a profit margin for the contractor. The result is that the logger will make approximately the same amount of money, whereas the landowner will make very little on the low value, non-merch material.

19. How much damage can I expect to residual trees?

Residual stand damage (direct damage to the trees, in addition to soil compaction) will be determined by the choice of equipment and the quality of the operator (the operator being the greatest factor). When you develop the written contract, establish a quantitative measurement—for example, “residual damage to trees will not surpass 5 percent.” This means the logger must leave no visible impacts on 95 percent of the trees in the harvest area. Whatever the measurement, stipulate in the contract any repercussions of violating the requirement. This may be as extreme as suspending operations or a specified reduction in payment.

20. I want to compare prices between contractors so I can make the harvest as affordable as possible. Can I ask contractors to itemize their charges for things such as slash piling, road maintenance or construction, and trucking to different locations?

Estimates from logging contractors may come as single unit cost or itemized according to specific tasks such as cutting, skidding, trucking, and slash disposal, to name a few. There is nothing wrong with wanting to see the costs associated to each portion of the job, but keep in mind that, in small scale operations, hiring multiple contractors to complete the operation is highly improbable because of the associated fixed costs of each entity.

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